



# MONTANA WILDLIFE MITIGATION PROGRAM



ANNUAL REPORT  
FY92



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ANNUAL PROGRESS REPORT

STATE: Montana

PROGRAM TITLE: MT Wildlife Mitigation  
Program (BPA)

PROJECT NO: 5102

PROJECT TITLE: Mitigation Coordination  
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PERIOD COVERED: July 1, 1991 - September 30, 1992

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DATE: February 10, 1993

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**MONTANA**  
**WILDLIFE MITIGATION PROGRAM**

**ANNUAL REPORT**  
**FY92**

Prepared By  
Harvey E. Nyberg  
Wildlife Mitigation Coordinator

February 10, 1993



## Introduction

Two units of the Columbia River Hydroelectric system, Libby and Hungry Horse dams, occur in western Montana. Together these dams flooded over 50,000 acres of prime wildlife habitats (Yde and Olsen 1984 and Casey et al 1984). An additional 2,100 acres of productive habitats were lost due to activities associated with hydroelectric development including road and railroad relocations and new road construction. The Northwest Power Act (1980) established the Northwest Power Planning Council and charged it with developing a program to protect, mitigate and enhance fish and wildlife and habitat affected by hydroelectric development. Montana's wildlife mitigation program was developed based on procedures established by the Council.

In December 1988, the State of Montana, Montana Department of Fish, Wildlife and Parks, and Bonneville Power Administration signed the Wildlife Mitigation Agreement for Libby and Hungry Horse Dams (Settlement Agreement). This agreement established a trust account which would be used to finance wildlife mitigation projects.

Three mitigation projects were underway in FY91: the Libby Habitat Enhancement Project, the Hungry Horse Habitat Enhancement Project and the Habitat Protection Project. This report summarizes activities completed during July 1, 1991 through September 30, 1992.

## WILDLIFE AND WILDLIFE HABITAT LOSSES

Wildlife and wildlife habitat loss statements for Libby and Hungry Horse dams were completed in 1984 (Yde and Olsen 1984 and Casey et al 1984, respectively). These reports identified the loss of 52,600 acres of productive wildlife habitats (Table 1). Habitat losses were determined by photo interpretation. Areas which appeared to have similar vegetation composition and structure were lumped into "habitat mapping units" (HMU's).

To determine the effect of that habitat loss on wildlife, a list of target species was developed for each reservoir. Target species were those which planners felt were most affected by the dams, threatened or endangered species, species of special concern and species designated a high priority species in the Montana Department of Fish, Wildlife and Parks regional plan. (Table 2). The value of each HMU for the target wildlife species was estimated based on available data and literature review. Where possible, the habitat loss was converted to a numerical estimate of the number of animals of a given target species lost.

In many cases, several target species occupied the same habitats and so the loss estimates when summed greatly exceed the total number of acres inundated. To compensate, mitigation planners acknowledged that mitigation projects done in one type of habitat benefit all those species which formerly occupied similar habitats (Bissell and Yde 1985 and Munding and Yde 1985). These overlapping benefits will be monitored as the mitigation program is implemented.

Table 1. Acres of Habitat Mapping Units included in the loss estimates for Libby and Hungry Horse Dams, Montana (Casey et al 1984 and Yde and Olsen 1984, respectively).

Habitat Mapping Unit	Hungry Horse	Libby	Total
<b>Aquatic</b>			
River/Stream	702	3,285	3,987
Pond/Lake	54		54
Marsh/Slough	147	29	176
Total Aquatic Habitats	903	3,314	4,217
<b>Terrestrial</b>			
Gravel Bar	532	955	1,487
Upland Grasslands	634	1,583	2,217
Upland Shrub	5,713	159	5,872
<b>Riparian Habitats</b>			
Deciduous Shrub Riparian	1,077	667	1,744
Deciduous Tree Riparian	100	873	973
Mixed Riparian Forest	3,619	2,511	6,130
Sub-irrigated Grassland	179	3,404	3,583
Total Riparian	4,975	7,455	12,430
<b>Coniferous Forest</b>			
Warm, Dry Conifer		7,159	7,159
Cool/Dry Douglas Fir		448	448
Cool/Moist Douglas Fir		5,143	5,143
Cold/Dry Subalpine Conifer		60	60
Warm/Moist Conifer		2,149	2,149
Dense Seral LPP Forest	229		229
Old Growth Coniferous Forest	568		568
Unspecified Conifer Forest	10,126		10,216
Total Conifers	10,923	14,959	25,882
Talus/Eroded Slopes	70	16	86
Developments		409	409
<b>TOTAL</b>	<b>23,750</b>	<b>28,850</b>	<b>52,600</b>
Islands *	32 (307)	47 (1,689)	79 (1,996)

\* Data are numbers (acres) of islands. The acreages of specific habitats on the islands were included above.



Table 2. Target species used in developing loss estimates for Libby and Hungry Horse Dams (Yde and Olsen 1984 and Casey et al 1984, respectively).

Target Species	Habitat Loss Estimate <sup>1</sup>		
	Hungry Horse	Libby	Total
<b>BIG GAME</b>			
White-tailed Deer (Winter Range)	NC	12,207	12,207
Mule Deer (Winter Range)	3,844	12,180	16,024
Mule Deer (Spring Range)	645	4,987	5,632
Elk (Winter Range)	8,749	Neg.	8,749
Moose	NL	9,993	9,993
Bighorn Sheep (Winter Range)	NL	4,350	4,350
Black Bear	22,994	27,536	50,530
Grizzly Bear	22,994	27,536	50,530
Mountain Lion	Big Game	Big Game	Big Game
<b>FURBEARERS</b>			
Aquatic	72 Miles <sup>2</sup>	101 Miles	173 Miles
Beaver			
Muskrat			
River Otter			
Mink			
Terrestrial	14,542	17,470	32,012
Marten	14,542	17,470	32,012
Lynx	229		
Bobcat	NC		
<b>UPLAND GAME BIRDS</b>			
Mountain Grouse	16,353	19,169	35,522
Ruffed Grouse	5,430		
Blue Grouse	NC		
Franklin's Grouse	10,923		
Columbian Sharp-tailed Grouse	Not Present	3,917	3,917
<b>WATERFOWL</b>	1,789	4,326	6,115
Canada Goose			
Mallard			
American Widgeon			
Wood Duck			
Barrows Goldeneye			
Common Goldeneye			
Harlequin Duck			
<b>RAPTORS</b>			
Bald Eagle	NC	NC	NC
Osprey	Benefits	Benefits	Benefits

1. Losses are expressed in acres unless otherwise noted. The following abbreviations apply: NC=Not calculated; Neg.=negligible loss; NL=Not listed in the mitigation plan.

2. Includes miles of river and stream corridors flooded by the reservoir.

## LIBBY HABITAT ENHANCEMENT PROJECT

This project was designed primarily to improve existing big game winter ranges on national forest lands adjacent to Lake Kootenai. Historically, the lower south and southwest facing slopes above the Kootenai River which provided big game winter range were open Ponderosa pine forests maintained by frequent wildfire. Between 1940 and 1977, 53 lightning fires were reported on the historic bighorn sheep winter range. Before the advent of effective fire suppression, these lightning caused fires halted normal plant succession and maintained an open Ponderosa pine forest. These open forests with a grassland or shrubland understory provided the forage needed by wintering big game and also provided valuable habitat for a wide variety of adapted wildlife species.

The wildlife losses and mitigation goal, projects and schedule from Table 4 in the Fish and Wildlife Program (NPPC 1987) are as follows:

WILDLIFE OR HABITAT LOSS	MITIGATION GOAL, PROJECT/SCHEDULE
66 bighorn sheep, 3,190 acres of winter range, and 485 mule deer, 10,586 acres of winter/spring range	BPA shall fund projects to enhance and maintain winter/spring ranges on Kootenai National Forest lands adjacent to Lake Kootenai to support target carrying capacities of an additional 66 sheep and 485 mule deer. Total number of acres to be treated will be established when the increase in carrying capacity for habitat enhancement is determined. An initial limit of 3,190 and 10,586 acres, respectively for bighorn sheep and mule deer, will be enhanced until increased carrying capacity is determined. Year 1, advance design. Years 2-10 implement and monitor.

This is a cooperative project between the Kootenai National Forest and the Montana Department of Fish, Wildlife and Parks (MDFWP). The Forest Service has primary responsibility for implementing individual enhancement projects. The department's primary responsibility is to evaluate the effectiveness of the enhancement project. The evaluation portion of the project is designed to determine when the projected (33%) increase in carrying capacity is achieved. That information will be used to determine the total number of acres of habitat which need to be improved to accomplish the mitigation goal. Because these are cooperative projects, personnel from both agencies actively participate in all phases of project implementation.

Activities during FY92 focused on implementing habitat enhancement projects and determining the size and composition of the mule deer and bighorn sheep populations. The major accomplishments are listed below.

### HABITAT ENHANCEMENT

Habitat enhancement activities were planned on 4,291 and completed on 3,789 acres. That included interdisciplinary review, layout and cultural resources review on 2,120 acres of proposed treatment areas, 294 acres of slashing and 1,956 acres of prescribed burning (Table 3).

Table 3. Annual work plan and accomplishments, Libby Habitat Enhancement Project, FY92.

TASK	UNIT	NAME	ACRES	TREATMENT TYPE	ACTIVITY	LAYOUT	ACRES SLASH	BURN
NA 1	WC5	Warland Creek	120	Slash/Burn	Burn Plan/Burn 2			120
3.8	AX8	Alexander Creek	129	Slash/Burn	Burn Plan/Burn 3			0
3.10	CB6	C Branch	212	Slash/Burn	Burn Plan/Burn			212
3.11	G1	Gaibler	116	Slash/Burn	Burn			116
3.12	GB8	Greene Basin	329	Slash/Burn	Layout	329		
3.13	Y1	Young Creek	34	Slash/Burn	Slash/Burn		34	238
3.14	LD7	Kennedy Gulch	165	Underburn	Burn			135
3.15	CG10	Canoe Gulch	40	Underburn	Burn			40
3.18	CH8&9	Cripple Horse	370	Slash/Burn	Burn Plan/Burn			370
3.19	WC4	Warland Creek	80	Underburn	Burn Plan/Burn 2			80
3.21	TM5	Tennille Creek	100	Underburn	Layout 4	0		
4.7	BC6	Big Creek	19	Slash/Burn	Burn Plan/Burn			30
4.8	MFP2	Paranip Creek	86	Slash/Burn	Layout/Slash	86	86	
4.9	PC9	Paranip Creek	89	Slash/Burn	Slash		89	137
4.10	Ron2	Rondo Creek	262	Slash/Burn	Burn Plan/Burn			313
4.11	LD3	Kennedy Gulch	165	Underburn	Burn			165
4.12	F11	Bluesky Creek	100	Underburn	Slash		25	
4.14	F10	Bluesky Creek	104	Underburn	Slash 5		0	
5.3	BD1	Boulder Creek	303	Slash/Burn	Layout	303		
5.4	CB4	C Branch	235	Slash/Burn	Layout	235		
5.6	CG5	Canoe Gulch	125	Underburn	Layout	125		
5.8	CC6	Canyon Creek	97	Underburn	Layout	97		
	CC7	Canyon Creek	50	Underburn	Layout	50		
6.4	R3	Rainy Creek	47	Underburn	Layout 4	134	60	
6.5	R5	Rainy Creek	101	Underburn	Layout	95		
6.12	SP1	Sutton/Peck	169	Slash/Burn	Layout 4	0		
6.14	CG8	Canoe Gulch	254	Underburn	Layout	254		
6.16	GB1	Greene Basin	223	Slash/Burn	Layout	223		
7.2	Y4	Young Creek	115	Slash/Burn	Layout	115		
7.8	BP1	Big /Paranip	52	Slash/Burn	Layout	74		
		Totals	4,291			2,120	294	1,956

1. Task numbers refer to the Kootenai River Wildlife Habitat Enhancement Project.

2. Units were burned unsuccessfully in FY92. These will be reburned in FY93.

3. Burning was rescheduled to FY93 because of unseasonably dry conditions.

4. Work not accomplished due to scheduling difficulties.

5. Slashing was determined unnecessary during layout. Unit will be burned in FY93 with F11.

6. Slashing in units R3 and R5 was done in FY92 because manpower was available.

## TIMBER HARVEST

Habitat enhancement activities occurred on 1,043 acres of timberland (Table 4). Broadcast burning following logging was conducted on 4 units (121 acres) to reduce logging slash and stimulate forage production. Logging was completed on 6 units (803 acres) and partially completed on 3 units. These activities were funded by the Kootenai National Forest as part of their regular timber sale program.

Table 4. Summary of wildlife habitat enhancement activity in timber sale units included in the Long-term Enhancement Plan on Kootenai NF during FY92. This table includes only that work done in FY92; other tasks may have been done in earlier years or remain to be done in subsequent years. Each task may include more than one unit.

SALE NAME	TASK	LOCATION	AREA	SALE PREP	ACRES <sup>1</sup>		VOL (MMBF)
					LOG	BURN	
Gotcha Pine Foreverett Salvage	2.1	Bristow Creek	152			152	
	2.5	Barron Creek	147				
	6.2	Barron Creek	249		37	396	368
W. Kootenai Helicopter	2.7	Zeligler View	100			100	
South Jack	3.2	Jackson Creek	58		42	58	312
Bugged Out PC	3.3	Little Jackson Cr	25		19	25	110
Wyoma Pine	3.4	Dunn Creek	72			72	
Mineral Sheep	3.6	Fivemile Creek	44	23	23		200
Fleetwood Jackson	4.2	Jackson Creek	36	90			
Fivemile Helicopter	4.3	Fivemile Creek	348	248			
TOTALS			1195	361	121	803	990

1. Areas are defined as: Area = total area included in each unit in Long-term Plan (here I assume the entire area was reconnoired for the best timber treatment opportunities); Sale Prep = area of cutting units; Log = area logged; Burn = area treated with prescribed fire after logging completed.

## EVALUATION

The mule deer and bighorn sheep monitoring effort was significantly reduced during fiscal year 92. The intensive vegetation and animal monitoring conducted under the Ural Tweed Bighorn Sheep - Wildlife Mitigation Project (FWP Project 51372) was eliminated in October 1991 and replaced with the Mule Deer Monitoring Project (FWP Project 51151). This downsizing was done in response to reduced funding availability and a decision to emphasize direct habitat enhancement rather than monitoring. The objectives of the MD Monitoring Project are to develop bounded estimates of big game population size within a core area, Tenmile to Rocky Gorge. Changes in the populations will be related by inference to changes in habitat based on comparisons with intensive monitoring at Hunry Horse. The results of the years monitoring efforts are reported in Nyberg and Brown 1993 (in prep). A brief summary is presented here.

During January to April, a concerted effort was made to capture and mark ungulates. The objective was to mark a large sample of mule deer and bighorn sheep for mark-resighting population estimates. A line of 20 clover traps was established in the core area. A total of 178 mule deer, 19 bighorn sheep and 6 white-tailed deer were captured during 710 trap-nights of effort. Yellow ear streamers (2 x 8 inch) were placed on 71 mule deer and 13 bighorn sheep. In addition, radio transmitter collars were placed on 23 mule deer and 4 bighorn sheep.

Nine animals died during trapping operations, 4 injured during trapping operations and 5 killed in the trap by predators (3 mountain lion and 2 coyote). Animals which died during trapping operations injured themselves on the trap itself. Following predation events, traps in the immediate vicinity were closed for several days to prevent recurrence. During 7 previous years of trapping, only one animal had been killed in the trap by a predator.

Animal distribution and habitat use data were collected during monthly radio collar relocation flights. Movement patterns reflected those previously reported.

A total coverage helicopter survey of the core area was conducted on April 6 and 7, 1992. A total of 261 mule deer and 50 bighorn sheep were observed. The mule deer population was estimated at 488 animals based on sighting of 34 of 68 yellow ear streamered mule deer. Bighorn sheep population estimates of 124 and 237 were calculated based on sightings of 10 of 26 total marked animals thought to be in the population and 2 of 13 yellow ear streamered sheep, respectively.

## PLANNING FOR FY93 PROJECTS

Kootenai National Forest, Confederated Salish and Kootenai Tribes and MDFWP personnel conducted pre-treatment field reviews of units scheduled for FY's 93 and 94.

## MAJOR ACTIVITIES PLANNED FOR FY92

### HABITAT ENHANCEMENT

Work is planned on about 3,518 acres of wildlife habitat enhancement projects in FY92 (Tables 5 and 6). That total includes interdisciplinary team review and layout on 2,116 acres, 1,381 acres of slashing and 2,783 acres of prescribed burning.

Pre-treatment surveys of units scheduled for completion in FY93 and FY94 will be conducted by the interdisciplinary team during FY93.

Table 5. List of tasks to be completed in FY92, Kootenai NF, from the Long-term Plan.

TASK	UNIT	NAME	ACRES	TREATMENT	ACRES		
					LAY- OUT	SLASH	BURN
NA	WC5	Warland Creek	120	Slash/Burn			120
3.8	AX8	Alexander Creek	129	Slash/Burn			129
3.12	GB8	Greens Basin	329	Slash/Burn	329	329	329
3.19	WC4	Warland Creek	80	Underburn			80
4.8	MFP2	Parsnip Creek	86	Slash/Burn			86
4.9	PC9	Parsnip Creek	109	Slash/Burn			109
4.12	F11	Bluesky Creek	100	Underburn			100
4.14	F10	Bluesky Creek	104	Underburn			104
5.2	CH19	Cripple Horse	180	Slash/Burn	180		
5.3	BD1	Boulder Creek	303	Slash/Burn	303	303	303
5.4	CB4	C-Branch	235	Slash/Burn	235	235	235
5.5	STH2	Stone Hill	291	Slash/Burn	291	291	291
5.6	CG5	Canoe Gulch	125	Underburn			125
5.7	CG14	Canoe Gulch	75	Underburn	75		
5.8	CC6	Canyon Creek	97	Underburn			97
	CC7	Canyon Creek	50	Underburn			50
6.4	R3	Rainy Creek	47	Slash/Burn			47
6.5	R5	Rainy Creek	101	Slash/Burn			101
6.6	AX5	Alexander Creek	57	Slash/Burn	57		
6.7	CH14	Cripple Horse	70	Slash/Burn	70		
6.11	TMI	Tenmile Creek	72	Slash/Burn	72		
6.12	SP1	Sutton/Peck Creek	169	Slash/Burn	169		
6.14	CG8	Canoe Gulch	254	Underburn			254
6.15	WC1	Warland Creek	112	Underburn	112		
6.16	GB1	Greens Basin	223	Underburn	223	223	223
		Totals	3,518		2,116	1,381	2,783



Table 6. Estimated costs of implementing the annual work plan for Libby Habitat Enhancement, FY93.

ACTIVITY	ACRES	D-1 COST	D-5,6 COST	TOTAL COST
Layout	2,116	\$ 27,290	\$ 19,690	\$ 46,980
Slashing	1,381	\$ 48,248	\$ 23,921	\$ 72,169
Burning	2,783	\$ 0	\$ 15,761	\$ 15,761
Subtotal		\$ 75,538	\$ 59,372	\$134,910
FS Overhead		\$ 18,129	\$ 14,249	\$ 32,378
TOTAL	3,518	\$ 93,667	\$ 73,621	\$167,288

1. Costs are estimates and may vary depending on site specific conditions.

## EVALUATION

In FY92, the evaluation segment of the project will again focus on developing bounded estimates of the mule deer and bighorn sheep populations. A budget summary for Fiscal years 92 and 93 is in Table 7. The major activities are listed below:

1. Trap and mark mule deer and bighorn sheep on the Tenmile - Rocky Gorge core area.
2. Relocate radio-collared animals monthly to determine movements, distribution and habitat use to provide data which will be used to evaluate the effectiveness of various habitat improvement activities.
3. Conduct early- and late-winter helicopter surveys to determine population size and composition.
4. Maintain current data files and analyze data to document effects of habitat improvement projects on bighorn sheep and mule deer populations.

5. Coordinate implementation activities with Forest Service Personnel.
6. Complete annual report summarizing results of population and distribution surveys.

Table 7. Budget summary for Mule Deer Monitoring Project, Fiscal years 92 and 93.

Budget Category	FY92 (Planned)	FY92 (Actual)	FY93 (Planned)
PERSONAL SERVICES	\$10,895	\$10,339	\$11,563
OPERATIONS AND MAINTENANCE	\$20,745	\$12,159	\$12,300
EQUIPMENT	\$0	\$5,000	\$0
Sub-total	\$31,640	\$27,498	\$23,863
DEPARTMENT OVERHEAD	\$5,632	\$4,895	\$4,606
TOTAL	\$37,272	\$32,393	\$28,469



## HUNGRY HORSE HABITAT ENHANCEMENT PROJECT

This project was designed primarily to mitigate the loss of elk winter range. It addresses the second highest priority mitigation project listed in the Wildlife and Wildlife Habitat Mitigation Plan for Hungry Horse (Bissell and Yde 1985). Other target species listed in the mitigation plan will also benefit, including: mule deer, black bear, grizzly bear, white-tailed deer, mountain lion, lynx and mountain grouse. A wide variety of small mammals and song birds which use shrubfields and forest openings will benefit as well.

The wildlife losses and mitigation goal, projects and schedule from Table 4 in the Council's Fish and Wildlife Program (NPPC 1987) are as follows:

WILDLIFE OR HABITAT LOSS	MITIGATION GOAL, PROJECT, SCHEDULE
133 elk, 6,650 acres of winter range	BPA shall fund projects to enhance and maintain winter range on Flathead National Forest lands to support a target carrying capacity of an additional 133 elk. Total number of acres to be treated will be established when the increase in carrying capacity for habitat enhancement is determined. An initial limit of 6,650 acres will be enhanced until increased carrying capacity is determined. Year 1, advance design. Years 1-5 Implement, test and monitor; report to Council for further action.

This is a cooperative project being implemented by the Flathead National Forest and the Montana Department of Fish, Wildlife and Parks (MDFWP). The Forest Service has primary responsibility for implementing individual habitat projects while the Department has primary responsibility to monitor and evaluate the effectiveness of the habitat enhancement work. Because this is a cooperative project, personnel from both agencies actively participate in all aspects of the project.

Activities during FY92 focused on implementing the habitat enhancement plan, evaluating the vegetation and animal responses to the treatment projects and continuing to gather baseline data on elk populations. The latter will ultimately provide the basis for evaluating success toward achieving the mitigation goal of increasing the elk carrying capacity by one-third.

During FY92, a decision was made to reduce the monitoring and evaluation effort at the Libby project area. Therefore, the Hungry Horse monitoring and evaluation program will be expected to provide information which can also be used to evaluate the success of the Libby project.

### HABITAT ENHANCEMENT

Habitat enhancement activities continued during FY92. Prescribed burning of natural shrubfields was completed on 11 units totalling 328 acres (Tables 8 and 9). In addition, forage shrubs on 10 of 69 acres in Unit 5 were slashed to create adequate fuel for prescribed

burning. Implementation costs were shared by the Rocky Mountain Elk Foundation, Bon-neville Power Administration (BPA Project # 88-113) and the department's Wildlife Mitigation Trust Account.

Table 8. Habitat enhancement projects completed during FY92, Hungry Horse Ranger District, Flathead NF.

Task	Unit	Location	Treatment Acres	
			Slash Shrubs	Burn
1.7	G	Hungry Horse Creek		26
1.8	H	Firefighter Mtn		13
1.9	I	Firefighter Mtn		26
1.10	J	Firefighter Mtn		13
1.11	K	Hungry Hore Creek		21
1.12	L	Green Slope		19
1.13	M	Firefighter Mtn		27
1.16	3	Crossover		61
1.18	5	Crossover	10	69
1.61	62	Point		43
1.62	63	Spring Meadow Creek		12
TOTAL			10	328

Table 9. Actual costs of implementing the annual work plan for Firefighter, FY92.

IMPLEMENTATION COST					
TREATMENT TYPE	ACRES	RMEF	BPA <sup>1</sup>	FWP TRUST	TOTAL
Slash Shrubs	10	\$0	\$0	\$140	\$140
Controlled Burn	328	\$3,376	\$8,816	\$6,034	\$18,226
TOTAL COST		\$3,376	\$8,816	\$6,174	\$18,366

1. These costs were covered under BPA Agreement Number DE - A179 - 88BP92986, Hungry Horse Wildlife Habitat Enhancement, Project # 88-113. This contract between the Flathead NF and BPA expired on December 31, 1992.

## TIMBER SALE

The Firefighter - BPA timber sale was sold by sealed bid on October 21, 1992. Three firms bid on the sale which sold for \$1,281 per acre, approximately 2.5 times the appraised value. Timber harvest will occur on 408 acres (34 units) with a projected yield of 2,732 thousand board feet (MBF) plus an unspecified number of posts, poles and stakes. Approximately 4.4 miles of road were built in FY92 which will allow logging to commence on July 1, 1993. Four post and pole units (Table 10) were harvested during FY92. Another post and pole unit was partially harvested. This activity will be reported in FY93. Additional post and pole units will be offered for sale in FY93.

Table 10. Summary of timber sale activity completed during FY92, Firefighter Mountain.

TASK	UNIT	LOCATION	ACRES
1.1	A	Spring Meadow Creek	11
1.2	B	Spring Meadow Creek	20
1.51	51	Spring Meadow Creek	17
1.52	52	Spring Meadow Creek	12
TOTAL			60

## EVALUATION

Results of monitoring studies are fully reported in Casey and Malta (1992). Portions of the executive summary are included here.

Initial sightability models developed for Firefighter (Casey and Malta 1990) were updated; sightability has averaged 21% over 5 winters. Sightability was strongly correlated with both group size and canopy cover, but these relationships have not yet been combined into a predictive model. Data suggest that use of dense cover by larger cow/calf groups plays an important role in the sightability of elk at Firefighter.

Indices of habitat use based on pellet group data continue to show heavy use of natural openings as compared to forested habitats. Use of proposed enhancement sites (timber sale units) averaged well below random forested sites based on pellet-group data, indicating such sites are currently under-utilized by elk.

Data collection and analysis for the Spotted Bear winter range continues to be de-emphasized as Firefighter receives the focus of enhancement (and therefore monitoring and

evaluation) efforts. We now estimate the wintering population at Spotted Bear exceeds 1,000 elk.

Vegetation monitoring efforts focused on treatment areas at Firefighter during 1991 and 1992. Browse utilization transect data indicate preferred browse species are generally in poor condition in natural openings used by elk, and are present as a minor component of the shrub layer in timbered sites scheduled for treatment. Serviceberry, willow, redstem ceanothus, maple and rose continue to be preferred species where available. Baseline habitat conditions in a set of treatment and control sites were described for comparison with subsequent (post-treatment) data.

Monitoring and evaluation activities for the period 1993-1995, originally outlined by Casey and Malta (1990) were refined. Population monitoring will require an additional 80-100 trap-nights of effort at Firefighter during winter 1992/1993, to mark an additional 15-20 elk. A minimum of 10 surveys of 60 animals, with at least one marked animal seen during the first pass in each survey, remains as the annual sampling goal for mark-resighting estimates and sightability model development. Approximately 40-50 pellet group surveys will be conducted annually to monitor elk distribution and habitat use relative to enhancement sites. Monthly pellet samples will also be collected during winter months to determine seasonal food preferences at Firefighter. Twenty or more treatment and control sites will be sampled for vegetation response on an annual basis using the USFS Ecodata Ocular and Short Nested Microplot methods. Additional browse transects will be conducted to monitor utilization and vigor of preferred browse species.

Enhancement activities were continued. These (FY92) activities included sale of the 34-unit Firefighter BPA Timber Sale, browse slashing and prescribed burns at 9 natural shrubfield sites at Firefighter and 3 sites at Spotted Bear. Additional browse slashing was conducted during FY91 at two sites in previously-thinned larch stands. Activities on the large timber sale were limited to road construction, but harvest will begin during early fall FY92. Five additional post-and-pole sale units were harvested during 1992.

## MAJOR ACTIVITIES PLANNED FOR FY93:

### HABITAT ENHANCEMENT

Habitat enhancement activities are planned on 12 units (151 acres). That includes 4 units (50 acres) of broadcast burning, 3 units (23 acres) of browse slashing and 5 units (78 acres) of slashing and burning of non-merchantable doghair lodgepole pine (Table 11). This is the final segment of work planned in phase one of the Firefighter Elk Habitat Enhancement project. The costs shown are estimates. Most of the work is scheduled to occur in the 3rd quarter FY93 (April-June).

## EVALUATION

The monitoring and evaluation project will be a continuation of the ongoing program. Specific major tasks to be completed are listed below and projected costs of the program are given in Table 12.

1. Trap and mark to maintain representative samples of elk at Firefighter and Spotted Bear Winter Ranges.
2. Relocate radio-collared elk every two weeks to determine movements, distribution and habitat use to provide data which will be used to evaluate the effectiveness of various habitat improvement activities.
3. Conduct paired fixed-wing and annual helicopter surveys to determine population size and composition.
4. Conduct Ecodata plots in a representative sample of treatment and control areas to determine vegetation response to habitat improvement activities.
5. Coordinate implementation of work plans, budgets and habitat improvement projects with Forest Service personnel.
6. Maintain current data files and analyze data to document effects of habitat improvement projects on elk and vegetation.
7. Initiate planning for elk winter range enhancement projects on other ranger districts on Flathead National Forest as opportunities arise.

Table 11.           Habitat enhancement work planned on the Firefighter Mountain winter range, FY93.

TREATMENT ACRES						
TASK	UNIT	LOCATION	BROAD- CAST BURN	SLASH/ BURN	SLASH BROWSE	PLANNED COST
1.1	A	Spring Meadow Creek *1	11			\$500
1.4	D	Green Slope *1	10			\$500
1.6	F	Green Slope		12		\$2500
1.19	9	Point			10	\$600
1.21	11	Point		20		\$2400
1.25	16	Point			6	\$600
1.27	18	HH Creek Bay		20		\$2400
1.28	21	Firefighter Mountain		12		\$1950
1.29	22	Firefighter Mountain		14		\$1950
1.32	25	Fire Creek			7	\$900
1.51	51	Spring Meadow Creek *1	17			\$500
1.52	52	Spring Meadow Creek *1	12			\$500
		TOTAL	50	78	23	\$15300

\*1 The Flathead NF will pay approximately 40% of the cost of this project using KV funds derived from the timber sale.



Table 12. Budget summary for Hungry Horse Elk Project, Fiscal Years 92 and 93.

Budget Category	FY92 (Planned)	FY92 (Actual)	FY93 (Planned)
PERSONAL SERVICES	\$62,598	\$63,253	\$65,354
OPERATIONS AND MAINTENANCE	\$17,520	\$18,331	\$15,900
EQUIPMENT	\$500	\$5,000	\$500
sub-total	\$80,618	\$86,883	\$81,754
DEPARTMENT OVERHEAD	\$14,350	\$15,465	\$15,359
TOTAL	94,968	\$102,348	\$94,939

## HABITAT PROTECTION PROJECT:

This project was designed primarily to protect riparian habitat for grizzly and black bears, wetland habitat for waterfowl and other dependent species, palouse prairie for Columbian sharp-tailed grouse and mature/old growth forests for terrestrial furbearers. It addresses the first, fourth and sixth priorities listed in the Hungry Horse Mitigation Plan (Bissell and Yde 1985) and the fourth, fifth and seventh priorities listed in the Libby mitigation plan (Mundinger and Yde 1985).

The habitats featured in this project are considered high priority, and many of the associated wildlife species are designated as Threatened or Endangered, Sensitive or Species of Special Concern or are the object of nationwide protection and restoration programs. This project will benefit a wide variety of the target species listed in the mitigation plans, including: numerous small mammals and birds associated with palouse prairie, riparian and old growth habitats, mule deer, elk, white-tailed deer, mountain lion, mountain grouse, aquatic furbearers, bald eagle and osprey.

The wildlife and habitat losses and mitigation goal, projects and schedule from Table 4 of the Fish and Wildlife Program (1987) are as follows:

WILDLIFE OR HABITAT LOSS	MITIGATION GOAL, PROJECTS, SCHEDULE
Columbian sharp-tailed grouse: 2,462 acres.	BPA shall fund projects to protect 2,462 acres of prairie habitat within the vicinity of the Tobacco Plains. Year 1-2, advanced design. Years 3-10, acquire easements.
Waterfowl: 4,564 acres of prime habitat.	BPA shall fund projects to protect and/or enhance 4,564 acres of prime wetlands in the flathead Valley. Years 1-2, advanced design. Years 3-10, upon completion of design, implement projects.
Grizzly Bears: 2-4 animals, 8,590 acres of critical habitat, and Black Bears: 27-34 animals, 8,590 acres of critical habitat.	BPA shall fund projects to protect 8,590 acres of riparian habitat and travel corridors through the acquisition of conservation easements. Years 1-2, advanced design; interagency coordination; prioritizing sites; appraisals. Upon completion, acquire easements.
Terrestrial Furbearers: 11,050 acres of old growth forest stands.	Bonneville shall negotiate cooperative agreements with state and federal agencies and private landholders to protect 11,050 acres of selected old growth forest stands. Years 1-2, advanced design; report to council for further action.

This project is being implemented with the aid of Technical Committees in each area of emphasis and an overall Habitat Protection Committee (HPC). The technical committees are teams of biologists representing agencies or private conservation groups which have expertise and/or management authority over the particular species or group. These committees meet on an ad-hoc basis and assist in refining the overall goals and objectives of the project as well as evaluating specific implementation proposals. In addition, these committees include potential cooperators who may be able to contribute financially or otherwise to accomplishing the mitigation goals.



The Habitat Protection Committee (HPC) includes individuals representing a broad spectrum of agencies or groups likely to be affected by the implementation of habitat protection projects. This group provides an invaluable first-line public involvement arena. The social and political bounds of the decision space are refined in this forum. Specific habitat protection proposals are brought before this group which discusses the broader ramifications of the project. The HPC confirms a project is consistent with the mitigation program and may recommend the department accept, reject or modify the project proposal. Recommendations from this group are carried forward to the Wildlife Mitigation Advisory Committee for their input. After considering the input of the WMAC, the Department makes the final decision on whether or not to proceed with a project.

Activities during FY92 focused on developing specific habitat protection projects; and completing a graduate student project to determine the important nesting and brood rearing habitats for Columbian sharp-tailed grouse. The activities completed under this project are fully reported in Wood (1992). The abstract from that report is presented here.

#### **PALOUSE PRAIRIE/COLUMBIAN SHARP-TAILED GROUSE**

The graduate student project to identify critical habitat for Columbian sharp-tailed grouse was completed (Cope 1992). This two year research project documented the success of augmentation efforts and provided information on habitat use by transplanted grouse. Only 2 of 21 transplanted grouse dispersed from the area. Numbers of grouse observed in the Tobacco Plains increased from one dancing ground supporting 4 grouse in 1987 to two dancing grounds and a total of 22 sharptails observed in 1991. However, numbers of grouse on the new dancing ground declined dramatically in 1992; only 5 males were observed in April. Decline in grouse numbers on the new dancing ground was likely due to a high mortality rate with reduced security cover on overgrazed pastures. The research documented the importance of native grasslands for nesting, brood rearing and winter habitat. All nests ( $n=7$ ) were found in native grasslands that had received little or no grazing pressure. Pockets of deciduous shrubs in the native grasslands were important during brood rearing. The native grasslands were also occupied by grouse during mild winters when little snow covered the valley floor.

An implementation plan providing guidelines for grouse mitigation was completed (Wood 1991). Based on this plan, enhancement activities on Department of State Lands and Kootenai National Forest lands were initiated. Two projects on private lands, including a cooperative agreement with The Nature Conservancy to manage 680 acres of grouse habitat and a riparian enhancement project were also developed.

#### **WETLANDS/WATERFOWL**

Three wetland projects were considered this year. A proposed enhancement project on the Kootenai National Forest was indefinitely postponed due to questions about whether the project would provide substantial benefits to wetlands or waterfowl. A second project to acquire and enhance wetlands on farmland in Lake County was terminated when the

landowner decided to sell to another party. A third project to restore drained wetlands on 850 acres in Flathead County (McGregor Meadows Ranch) is ongoing.

#### MAJOR ACTIVITIES PLANNED FOR FY92:

In January 1993, the project biologist accepted a position with The Montana Nature Conservancy. The department has decided to leave this position vacant until approximately November 1993. Therefore, the work plan for FY93 will be limited to those activities that can be accomplished in cooperation with other agencies. The major activities planned for FY92 are listed below. The projected budget for the Habitat Protection Project is presented in Table 13.

1. Review and consider proposals for cooperative wetland habitat projects with land managing agencies.
2. Implement selected portions of the Columbian Sharp-tailed Grouse Mitigation Implementation Plan. Continue to identify and develop opportunities for projects to enhance palouse prairie habitats in the Tobacco Plains.
3. Develop habitat protection project proposals. Projects may include palouse prairie, wetland, or riparian habitat acquisition / protection.

Table 13. Budget summary for Habitat Protection Project, Fiscal Years 91 and 92.

Budget Category	FY92 (Planned)	FY92 (Actual)	FY93
PERSONAL SERVICES	\$38,479	\$37,480	\$42,169
OPERATIONS AND MAINTENANCE	\$9,300	\$6,742	\$7,800
EQUIPMENT	\$0	\$0	\$0
sub-total	\$47,779	\$44,222	\$49,969
DEPARTMENT OVERHEAD	\$8,505	\$7,872	\$8,459
TOTAL	\$56,248	\$52,094	\$52,286

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